

REMARKS

Claims 1-14 are pending in this application. The amendment to the Abstract of the present specification does not add new matter. Also, no new matter has been added with the replacement sheet drawings.

Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all objections and rejections and allow the currently pending claims.

Drawings

In the outstanding Office Action, the drawings were objected to because Figures 1-2 lack the proper cross-hatching which indicates the types of materials (see paragraph 3 of the Office Action). Applicants respectfully refer the Examiner to the formal drawings submitted herewith. The corrected drawings properly incorporate the requested cross-hatching to indicate the separate conductor and insulative materials.

With regard to the Examiner's designation of Figure 2 as --Prior Art-- (see paragraph 4 of the Office Action), Applicants respectfully submit that this label is inappropriate, since one of skill in the art upon reading the present specification would understand this Figure is a comparative example.

Abstract of the Disclosure

The Abstract of the Disclosure is objected to because the last line of the Abstract incorporates improper language (as stated in paragraphs 5-6 of the Office Action). The Abstract has been amended to correct the improper language. Therefore, this objection has been overcome.

Issues Under 35 U.S.C. § 103(a)

Claims 1-3, 5-12 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Higashiura et al. '140 (JP Patent No. 10-125140) in view of Hosoi '703 (JP Patent No. 04-345703) (see paragraphs 8-9 of the Office Action). Applicants respectfully traverse, and reconsideration and withdrawal thereof are respectfully requested.

The Features of the Present Invention

As recited in instantly pending claim 1, one feature of the present invention resides in the specific combination of an (inner) insulating layer and a second insulating layer that is positioned outside of the mentioned inner layer. That is, as recited in pending claim 1, the inner layer is composed of a polyethersulfone resin. In pending claim 6, the inner layer is composed of a resin mixture made by blending 100 parts by weight of resin (A) of at least one selected from the group consisting of a polyetherimide resin and a polyethersulfone resin, and 10 parts by weight or more of resin (B) of at least one selected from

the group consisting of a polycarbonate resin, a polyarylate resin, a polyester resin and a polyamide resin. Further, as recited in each of claims 1 and 6, the outer layer is composed of polyphenylenesulfide resin.

The Unexpected Advantages of the Present Invention

A polyetherimide resin and a polyethersulfone resin, which can be used for the inner layer of the multilayer insulated wire of the present invention, each have heat resistance *per se*, and are further excellent in abrasion resistance. The mentioned resins can satisfy IEC (International Electrotechnical Communication) Standards when used for a transformer and the like, as described in the Background Art section of the present specification (see page 1, starting at line 13). However, unexpected advantages are achieved by combining at least one of these inner layer materials (*i.e.*, polyetherimide resin and polyethersulfone resin) with a polyphenylenesulfide resin as the outer layer material. As a result, the present invention provides a multilayer insulated wire having further solvent resistance and chemical resistance, without adversely affecting heat resistance and abrasion resistance that are due to the properties of the mentioned inner layer material. In addition, such unexpected advantages have been experimentally confirmed.

Specifically, as evidenced by Comparative Examples 3 and 4 on page 39 of Applicants' specification, a polyethersulfone resin or a

polyetherimide resin used singly in both the inner layer and the outer layer leads to inferior results. When compared to the present invention, and as explained at page 44 of the present specification, Comparative Examples 3 and 4 achieved poor solvent resistance and chemical resistance (see Table 3 on page 39 of the specification; compare to Inventive Examples at pages 34+).

Further, in another embodiment (claim 6), the present invention provides a multi-layered insulated wire having the above-stated unexpected, excellent properties. Claim 6 of the present invention further has good solderability, as described in the paragraphs [0099] to [0100] in the patent application publication of the present application.

In contrast, the cited combination of Higashiura '140 and Hosoi '703 fails to disclose all features and advantages of the present invention. Applicants further submit that Hosoi '703 actually teaches away from achieving the present invention, and a *prima facie* case of obviousness has not been established. Applicants also submit that the cited combination of Higashiura '140, Hosoi '703 and Nakano '238 is improper for the same reasons.

Distinctions over the Cited References

The instant rejection combines the disclosure of Higashiura '140 with that of Hosoi '703.

(A) Primary Reference: Higashiura '140

The cited primary reference of Higashiura '140 is used to disclose a polyetherimide resin and/or a polyethersulfone resin in a multilayer insulated wire (see the Office Action at page 5, lines 1-4; reference is made to the Abstract of the cited reference). Higashiura '140 describes providing an electrical wire excellent in heat resistance and certain electrical properties (see paragraph [0007]), and the results of heat resistance tests are shown in its examples (see its paragraph [0033] and Tables 1 to 4).

However, as the Examiner pointed out, problems of chemical resistance and solvent resistance are not even suggested in Higashiura '140. Further, Higashiura '140 fails to disclose or recognize any use of a polyphenylenesulfide resin in the outer layer as instantly claimed (see the last paragraph of page 5 of the Office Action). Still, the Examiner cites Hosoi '703 to account for the deficiencies of the primary reference. In this regard, Applicants respectfully submit that Higashiura '140 cannot be properly combined with Hosoi '703 for the reasons stated below.

(B) Secondary Reference: Hosoi '703

In the cited secondary reference of Hosoi '703, the disclosed inner layer is composed of a flexible fluoropolymer (fluorocarbon resin). The flexible fluoropolymer is used instead of heat resistant engineering

plastics, such as polyetherimide, which is used as the inner layer of the multilayer insulated wire of the present invention. With such an inner layer having heat resistant engineering plastics, Hosoi '703 discloses that the engineering plastics are prone to be cracked upon bending since engineering plastics are too hard and further poor in elongation (see paragraphs [0005] to [0007] in Hosoi '703). Therefore, as described in paragraph [0009] in Hosoi '703, a polyphenylenesulfide resin is utilized to compensate for such deficient electrical and chemical properties (i.e., insufficient heat resistance and abrasion resistance). Such deficiencies are a result of not using resins excellent in heat resistance and abrasion resistance (i.e., engineering plastics).

Thus, based on such disclosure in the secondary reference, one of ordinary skill in the art would understand that Hosoi '703 lacks any description or suggestion of any objective, resulting effect, or action regarding improvement of chemical resistance and solvent resistance of an insulated wire, by using a polyphenylenesulfide resin in an outer layer. Instead, Hosoi '703 is directed to solving problems associated with using materials other than the engineering plastics mentioned above. In contrast, certain claimed resins are utilized in the present invention, wherein Hosoi '703 fails to disclose using these resins or using such resins to coat a multilayer insulated wire (as discussed above).

(C) *Improper Combination of References*

Accordingly, based on the disclosure of each cited reference, Applicants respectfully submit the references cannot be properly combined so as to achieve the present invention.

First, one of ordinary skill in the art would understand that the present invention is patentably distinct from the technique disclosed in Hosoi '703 so that the skilled artisan would not even refer to this reference. Second, there are certain inconsistencies between the two cited references such that the skilled artisan would not be motivated and/or reasonably expect to be successful in combining the two references in order to achieve the present invention.

As stated in detail above, an important feature in Hosoi '703 resides in not using such heat resistant engineering plastics as those disclosed in and used in the present invention, or even those disclosed in Higashiura '140. This makes Hosoi '703 inconsistent with the primary reference and with the present invention.

In the absence of heat resistant engineering plastics, e.g., a polyetherimide resin, Hosoi '703 addresses such drawbacks by using the fluoropolymer with polyphenylenesulfide resin. Regarding this disclosure in Hosoi '703, Applicants note that any cited reference used for a rejection under 35 U.S.C. § 103(a) must be considered in its entirety, i.e., as a whole, including those portions that would lead away from a claimed invention. See *W.L. Gore & Associates, Inc. v.*

Garlock, Inc., 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). In other words, Hosoi '703 must be read in its entirety, including the teaching away that using heat resistant engineering plastics poses certain problems (i.e., cracking; insufficient elongation) and discloses not using them. Thus, Applicants respectfully submit that Hosoi '703 teaches one of ordinary skill in the art away from using engineering plastics, e.g., a polyetherimide resin, in a combination as instantly claimed or in a resin coating such as that disclosed in Higashiura '140.

In addition, Applicants submit that if a proposal for modifying the cited reference in an effort to attain the claimed invention causes the reference to become inoperable or destroys its intended function, then the requisite motivation to make the modification would not have existed. See *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984) (Federal Circuit stating that modifying the French apparatus as the Board suggested would render the apparatus inoperable for its intended purpose); *In re Fritch*, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992); see also *In re Ratti*, 123 USPQ 349, 352 (CCPA 1959). That is the case here, because producing the present invention as asserted in the Office Action would destroy the intended purpose of the Hosoi '703 reference (i.e., using flexible fluoropolymer and polyphenylenesulfide resin). The Federal Circuit has even recently held: "If references taken in combination would produce a 'seemingly inoperative device,' we have held

that such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness." See *McGinley V. Franklin Sports Inc.*, 60 USPQ2d 1001, 1010 (CAFC 2001) (citing *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (CCPA 1969) (references teach away from combination if combination produces seemingly inoperative device); see also *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (inoperable modification teaches away)). Applicants submit that is the case here given the inconsistent disclosures between Hosoi '703 and Higashiura '140 and the proposal to achieve the present invention.

Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness has not been established. U.S. case law squarely holds that a proper obviousness inquiry requires consideration of three factors: (1) the prior art reference (or references when combined) must teach or suggest all the claim limitations; (2) whether or not the prior art would have taught, motivated, or suggested to those of ordinary skill in the art that they should make the claimed invention (or practice the invention in case of a claimed method or process); and (3) whether the prior art establishes that in making the claimed invention (or practicing the invention in case of a claimed method or process), there would have been a reasonable expectation of success. See *In re Vaeck*, 947 F.2d, 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). Here, even though Hosoi '703 discloses a certain resin, a person having

ordinary skill in the art would never be motivated in combining the two references since an inner layer composed of Higashiura '140 resin is taught as not being utilized in Hosoi '703.

Therefore, Applicants respectfully submit that the instant rejection has been overcome and/or is improper. Applicants submit that the present invention is patentably distinct from the cited combination of Higashiura '140 and Hosoi '703. Reconsideration and withdrawal of this rejection are respectfully requested.

Issues Under 35 U.S.C. § 103(a)

Claims 4 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Higashiura '140 in view of Hosoi '703, as applied to claims 1 and 6-10 above, further in view of Nakano et al. '238 (U.S. Patent No. 5,166,238) (see paragraph 10 of the Office Action). Applicants respectfully traverse this rejection, and reconsideration and withdrawal thereof are respectfully requested.

Distinctions over the Cited Combination

Claims 4 and 13, the claims at issue for this rejection, depend on Claims 1 or 6. Thus, Applicants herein incorporate the above comments with regard to the first rejection in view of Higashiura '140 and Hosoi '703. As noted above, Applicants submit that these two references cannot be properly combined, and that Hosoi '703 even teaches the

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skilled artisan away from achieving the present invention. Despite any disclosure in Nakano '238 reference, the Examiner cannot ignore the teaching away present in Hosoi '703. Applicants add that one or more of the cited references would be rendered inoperable, and/or the intended purpose of the reference(s) (i.e., Hosoi '703) would be destroyed. Thus, Applicants submit that this rejection also has been overcome and/or is improper. Reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact Eugene T. Perez (Reg. No. 48,501) at the offices of Birch, Stewart, Kolasch & Birch, LLP.

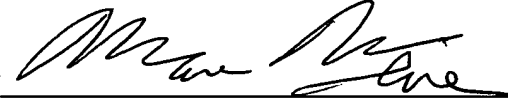
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Pursuant to 37 C.F.R. § 1.17 and 1.136(a), Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application. The required fee of \$110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By



Marc S. Weiner, #32,181

MSW/ETP/las
0234-0472P

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

Attachment: Abstract

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AMENDMENTS TO THE DRAWINGS

Attached hereto is one (1) sheet of corrected formal drawings that complies with the provisions of 37 C.F.R. § 1.84. The corrected drawings incorporate the following drawing changes:

Incorporation of proper cross-hatching to indicate the conductor and insulative materials.

It is respectfully requested that the corrected formal drawings be approved and made a part of the record of the above-identified application.

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